


Amendments to the Claims:

The below listing of claims replaces all prior versions and listings of claims in the application. Please cancel claim 1, add claim 38 and amend claims 2, 5, 7-9, 16-18 and 21-23 as follows:

Listing of Claims:

1. (cancelled)

2. (amended) The sensor of claim [1]23, wherein the main control circuit includes:

 a first switch control circuit to control a switch of the first plurality of switches to connect the signal from the pixel of the column of pixels to the column bus while controlling all remaining switches of the first plurality of switches to isolate the column bus from all remaining pixels of the column of pixels; and

a second switch control circuit to control a switch of the second plurality of switches to connect the signal on the column bus to the accumulator of the column of accumulators while controlling all remaining switches of the second plurality of switches to isolate the column bus from all remaining accumulators of the column of accumulators.

3. (original) The sensor of claim 2, wherein the main control circuit further includes:

a first increment control circuit to increment the first switch control circuit to control a next in succession switch of the first plurality of switches to connect a signal from a next in succession pixel of the column of pixels to the column bus while controlling all remaining switches of the first plurality of switches to isolate the column bus from all remaining pixels of the column of pixels; and

a second increment control circuit to increment the second switch control circuit to control a next in succession switch of the second plurality of switches to connect the signal on the column bus to a next in succession accumulator of the column of accumulators while controlling all remaining switches of the second plurality of switches to isolate the column bus from all remaining accumulators of the column of accumulators.

4. (original) The sensor of claim 3, wherein:

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com the main control circuit further includes a first repeat control circuit to repetitively operate the first increment control circuit, the first switch control circuit, the second increment control circuit, and the second switch control circuit;

each repetitive operation of the first switch control circuit couples a signal from a successive pixel of the column of pixels onto the column bus; and

each repetitive operation of the second switch control circuit couples the signal that was coupled onto the column bus from a pixel to a corresponding accumulator of the column of accumulators.

5. (original) The sensor of claim 4, wherein each time the first repeat control circuit is operated, the first repeat control circuit:

repetitively operates the first increment control circuit and the first switch control circuit until all pixels of the column of pixels have been successively coupled onto the column bus; and

repetitively operates the second increment control circuit and the second switch control circuit until the signal on the column bus has been successively coupled into all accumulators of the column of accumulators.

6. (original) The sensor of claim 5, wherein the main control circuit further includes a second repeat control circuit to operate the first increment control circuit and then operate the first repeat control circuit each time the second repeat control circuit is operated.

7. (amended) The sensor of claim [6]38, wherein ~~the main control circuit operates~~ the second repeat control circuit operates each time a point in a moving image projected on the column of pixels transverses a pixel boundary.

8. (amended) The sensor of claim 7, wherein ~~the main control circuit repetitively operates~~ the second repeat control circuit repetitively operates until the point in the moving image traverses the column of pixels.

9. (amended) The sensor of claim [1]23 further comprising:

an output bus;

a third plurality of switches, each switch being coupled between the output bus and a corresponding accumulator of the column of accumulators, wherein the main control circuit controls the third plurality of switches to couple an accumulated signal from an accumulator of the column of accumulators to the output bus.

10. (original) The sensor of claim 9, wherein the main control circuit includes a switch control circuit to control a switch of the third plurality of switches to connect the accumulated signal from the accumulator of the column of accumulators to the output bus while controlling all remaining switches of the third plurality of switches to isolate the output bus from all remaining accumulators of the column of accumulators.

11. (original) The sensor of claim 10, wherein the main control circuit further includes an increment control circuit to increment the switch control circuit to control a next in succession switch of the third plurality of switches to connect the accumulated signal at a next in succession accumulator of the column of accumulators to the output bus to while controlling all remaining switches of the third plurality of switches to isolate the output bus from all remaining accumulators of the column of accumulators.

12. (original) The sensor of claim 11, wherein:

the main control circuit further includes a repeat control circuit to repetitively operate the increment control circuit and the switch control circuit; and

each repetitive operation of the switch control circuit couples a signal from a successive accumulator of the column of accumulators.

13. (original) The sensor of claim 12, wherein each time the repeat control circuit is operated, the repeat control circuit repetitively operates the increment control circuit and the switch control circuit until all accumulators of the column of accumulators have been successively coupled onto the output bus.

14. (original) The sensor of claim 13, wherein the main control circuit operates the repeat control circuit each time a point in a moving image projected on the column of pixels transverses a pixel boundary.

15. (original) The sensor of claim 14, wherein the main control circuit repetitively operates the repeat control circuit until the point in the moving image traverses the column of pixels.

16. (amended) The sensor of claim [6]38 further comprising:

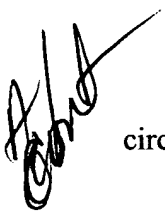
an output bus; and

a third plurality of switches, each switch being coupled between the output bus and a corresponding accumulator of the column of accumulators, ~~wherein the main control circuit controls the third plurality of switches to couple an accumulated signal from an accumulator of the column of accumulators to the output bus.~~

17. (amended) The sensor of claim 16, ~~wherein the main control circuit includes~~ further comprising a third switch control circuit operable to control a switch of the third plurality of switches to connect the accumulated signal from the accumulator of the column of accumulators to the output bus while controlling all remaining switches of the third plurality of switches to isolate the output bus from all remaining accumulators of the column of accumulators.

18. (amended) The sensor of claim 17, ~~wherein the main control circuit further includes~~ comprising a third increment control circuit operable to increment the third switch control circuit to control a next in succession switch of the third plurality of switches to connect the accumulated signal at a next in succession accumulator of the column of accumulators to the output bus while controlling all remaining switches of the third plurality of switches to isolate the output bus from all remaining accumulators of the column of accumulators.

19. (original) The sensor of claim 18, wherein:

 the second repeat control circuit repetitively operates the third increment control circuit and the third switch control circuit; and

each repetitive operation of the third switch control circuit couples a signal from a successive accumulator of the column of accumulators.

20. (original) The sensor of claim 19, wherein each time the second repeat control circuit is operated, the second repeat control circuit repetitively operates the third increment control circuit and the third switch control circuit until all accumulators of the column of accumulators have been successively coupled onto the output bus.

21. (amended) The sensor of claim 20, wherein ~~the main control circuit operates~~ the second repeat control circuit operates each time a point in a moving image projected on the column of pixels transverses a pixel boundary.

22. (amended) The sensor of claim 21, wherein ~~the main control circuit repetitively operates~~ the second repeat control circuit repetitively operates until the point in the moving image traverses the column of pixels.

23. (amended) [The] ~~A sensor of claim 1~~ comprising:

a column bus;

a column of pixels;

a first plurality of switches, each switch being coupled between the column bus and a corresponding pixel of the column of pixels;

a column of accumulators;

a second plurality of switches, each switch being coupled between the column bus and a corresponding accumulator of the column of accumulators; and

a main control circuit to control the first and second plurality of switches,

wherein the column bus, all pixels in the column of pixels, [a] all switches of the first and second plurality of switches, all accumulators in the column of accumulators, and the main control circuit include poly-crystalline silicon conductors, all poly-crystalline silicon conductors being formed from only a single layer of a patterned poly-crystalline silicon film.

24. (original) A method of scanning an image comprising steps of:

updating a column of accumulators from a column of pixels by repeatedly incrementing first and second switch control circuits; and

incrementing the first switch control circuit and a third switch control circuit to output an accumulated value from the column of accumulators.

25. (original) The method of claim 24, wherein the step of updating a column of accumulators includes steps of:

transferring a pixel signal from a pixel selected from the column of pixels based on the first switch control circuit into an accumulator selected from the column of accumulators based on the second switch control circuit; and
updating the selected accumulator.

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26. (original) The method of claim 25, wherein the step of updating a column of accumulators further includes:

a step of causing the step of transferring a pixel signal from a pixel to successively repeat; and

a step of causing the step of updating the selected accumulator to successively repeat to update each accumulator in the column of accumulators.


27. (original) The method of claim 25, wherein the step of transferring a pixel signal includes:

addressing the selected pixel based on the first switch control circuit to transfer a selected pixel signal from the selected pixel onto a column bus; and

addressing the selected accumulator based on the second switch control circuit to transfer the selected pixel signal from the column bus into the selected accumulator.

28. (original) The method of claim 27, wherein the step of updating the selected accumulator includes updating an accumulator signal value stored in the selected accumulator based on the selected pixel signal.

29. (original) The method of claim 24, further comprising a step of causing the steps of updating a column of accumulators and incrementing the first switch control circuit and a third switch control circuit to output an accumulated value to successively repeat.

 30. (original) The method of claim 24, wherein the step of incrementing the first switch control circuit and a third switch control circuit to output an accumulated value includes transferring the accumulated value from an accumulator selected from the column of accumulators based on the third switch control circuit onto an output bus.

31. (original) A sensor comprising:
means for updating a column of accumulators from a column of pixels by repeatedly incrementing first and second switch control circuits; and
means for incrementing the first switch control circuit and a third switch control circuit to output an accumulated value from the column of accumulators.

32. (original) The sensor of claim 31, wherein the means for updating a column of accumulators includes:

means for transferring a pixel signal from a pixel selected from the column of pixels based on the first switch control circuit into an accumulator selected from the column of accumulators based on the second switch control circuit; and

means for updating the selected accumulator.

33. (original) The sensor of claim 32, wherein the means for updating a column of accumulators further includes:

means for causing the means for transferring a pixel signal from a pixel to successively repeat; and

means for causing the means for updating the selected accumulator to successively repeat to update each accumulator in the column of accumulators.

34. (original) The sensor of claim 32, wherein the means for transferring a pixel signal includes:

means for addressing the selected pixel based on the first switch control circuit to transfer a selected pixel signal from the selected pixel onto a column bus; and

means for addressing the selected accumulator based on the second switch control circuit to transfer the selected pixel signal from the column bus into the selected accumulator.

35. (original) The sensor of claim 34, wherein the means for updating the selected accumulator includes means for updating an accumulator signal value stored in the selected accumulator based on the selected pixel signal.

36. (original) The sensor of claim 31, further comprising means for causing the steps of updating a column of accumulators and incrementing the first switch control circuit and a third switch control circuit to output an accumulated value to successively repeat.

37. (original) The sensor of claim 31, wherein the means for incrementing the first switch control circuit and a third switch control circuit to output an accumulated value includes means for transferring the accumulated value from an accumulator selected from the column of accumulators based on the third switch control circuit onto an output bus.

38. (new) A sensor comprising:

a column bus;

a column of pixels;

a first plurality of switches, each switch being coupled between the column bus and a corresponding pixel of the column of pixels;

a column of accumulators;

a second plurality of switches, each switch being coupled between the column bus and a corresponding accumulator of the column of accumulators;

a first switch control circuit operable to control a switch of the first plurality of switches to connect the signal from the pixel of the column of pixels to the column bus while controlling all remaining switches of the first plurality of switches to isolate the column bus from all remaining pixels of the column of pixels;

a second switch control circuit operable to control a switch of the second plurality of switches to connect the signal on the column bus to the accumulator of the column of

accumulators while controlling all remaining switches of the second plurality of switches to isolate the column bus from all remaining accumulators of the column of accumulators;

a first increment control circuit operable to increment the first switch control circuit to control a next in succession switch of the first plurality of switches to connect a signal from a next in succession pixel of the column of pixels to the column bus while controlling all remaining switches of the first plurality of switches to isolate the column bus from all remaining pixels of the column of pixels;

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a second increment control circuit operable to increment the second switch control circuit to control a next in succession switch of the second plurality of switches to connect the signal on the column bus to a next in succession accumulator of the column of accumulators while controlling all remaining switches of the second plurality of switches to isolate the column bus from all remaining accumulators of the column of accumulators;

a first repeat control circuit operable to repetitively operate the first increment control circuit, the first switch control circuit, the second increment control circuit, and the second switch control circuit; and

a second repeat control circuit operable to operate the first increment control circuit and then operate the first repeat control circuit each time the second repeat control circuit is operated.